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PORT-ORFORD-CEDAR

. . . an American wood

Uniform texture, good machining properties, moderate shrinkage, lightness, ability to stay in place, good paint-holding properties, decay resistance, and moderate strength properties make Port-Orford-cedar a desirable wood for a variety of uses. Almost all of the available volume of Port-Orford-cedar is exported to Japan for use in the woodenware, novelty, and toy industries and in shrines and temples.

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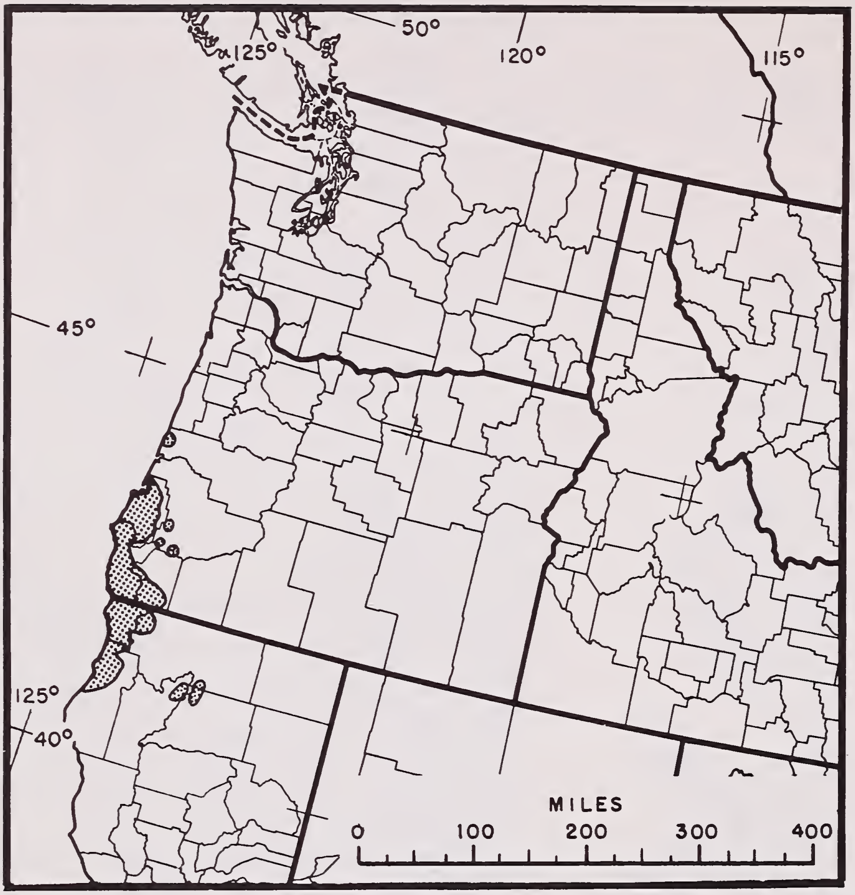

Figure 1.—Natural range of Port-Orford-cedar.

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PORT-ORFORD-CEDAR

. . . *an American wood*

John W. Henley[1]

DISTRIBUTION

The natural range of Port-Orford-cedar (*Chamaecyparis lawsoniana* (A. Murr.) Parl.) is restricted to the Pacific coast from Coos Bay, Oregon, to Eureka, California. The best stands are not more than 10 to 40 miles inland in Coos and Curry Counties of Oregon. It is scattered farther inland in the Siskiyou Mountain Range and at isolated locations from Mount Shasta to the Trinity Mountains in northern California (fig. 1).

Port-Orford-cedar usually occurs in mixed forests, either singly or in small groups. As a rule, it constitutes less than 25 percent of the stand. Some nearly pure, small stands are found between Coos Bay and Port Orford, Oregon. In the northern part of its range, its chief associates include Douglas-fir, Sitka spruce, grand fir, western hemlock, and western redcedar. Toward its southern limit in California, its associates are redwood, red fir, Sitka spruce, and even ponderosa pine, sugar pine, and lodgepole pine on the dry upper slopes. Port-Orford-cedar is tolerant enough to live as an understory tree with most associates.

DESCRIPTION AND GROWTH

Mature Port-Orford-cedar trees are 4 to 6 feet in diameter and up to 200 feet tall (fig. 2). Natural stands grow at a rate of 1 inch in diameter at breast height every 10 to 12 years. The tree retains the capacity for a moderately rapid response to release to a very old age. It grows best in areas with wet winters, dry summers, relatively uniform temperatures, and frequent summer fog.

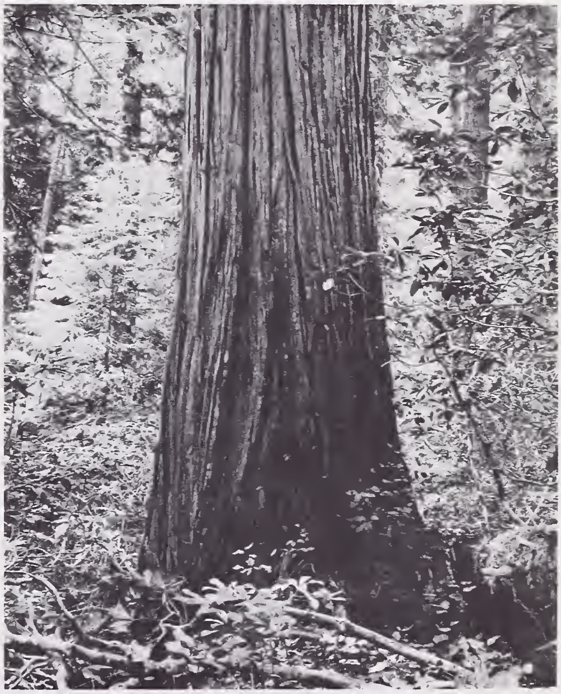

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Figure 2.—Port-Orford-cedar of approximately 6 feet d.b.h. Note bark characteristics.

The foliage forms fine, horizontally flattened, feathery or fernlike sprays. The scalelike leaves are small, paired, and blunt. The small, rounded

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[1] Forest products technologist, Pacific Northwest Forest and Range Experiment Station, USDA Forest Service.

NOTE: This publication supersedes unnumbered publication *Port-Orford-Cedar*, issued 1945.

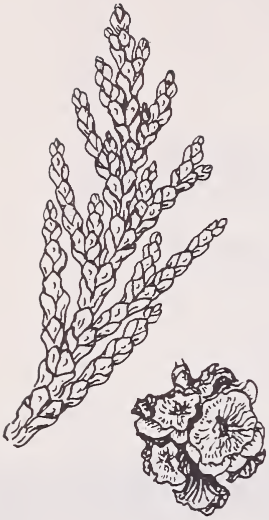

Figure 3.—Port-Orford-cedar leaves and cones. Two small seeds are borne under each cone scale.

cones are composed of six to 12 rounded, slightly hard scales and mature in 1 or 2 years (fig. 3). Some seed are produced nearly every year, and large crops occur every 4 or 5 years. Seed quality is generally poor, and seedling survival is fair. The bark, 6 to 10 inches thick on old trees, is silvery brown, fibrous, and divided into rounded ridges separated by deep, irregular furrows (fig. 2).

Old trees are very fire resistant, but young trees are readily killed by fire. The boles of large trees are sometimes buttressed and free of limbs for 150 feet or more of their length. Port-Orford-cedar has a tendency to form multiple stems at almost any height. It has small, numerous lateral roots and no taproot.

The tree has a pleasing appearance and has been widely used for ornamental planting and reforestation projects. The species is subject to modification under cultivation, and as a result, over 80 horticultural varieties have been identified. However, because Port-Orford-cedar is more susceptible to cold injury than other native conifers and subject to a very destructive root disease, the species is not recommended for reforestation projects. The disease, *Phytophthora lateralis* (a killing root disease), became established on native trees in the early 1950's in the vicinity of Coos Bay, Oregon. Since its initial buildup, the disease has gradually and steadily encroached into new areas and proven to be almost 100 percent pathogenic to all varieties of Port-Orford-cedar, both in the natural state and in plantings. Surveys indicate that infection will eventually reach all but the most isolated parts of the natural range of Port-Orford-cedar.

COMMON NAMES

The most common name, Port-Orford-cedar, is a result of the tree's occurrence in the Port Orford, Oregon, area. Port-Orford white-cedar, Oregon-cedar, Lawson false-cypress, and Lawson cypress are other common names. Many other names are associated with horticultural varieties.

SUPPLY

The volume of Port-Orford-cedar on commercial forest land in Oregon was 933 million board feet (Scribner rule) in the 1963 Forest Survey inventory. This compares with 1,688 million and 1,397 million bd. ft. in the 1948 and 1932–33 inventories, respectively. Precise inventory estimates of the Port-Orford-cedar volume in California are not available; however, the total volume of commercial Port-Orford-cedar is estimated to be 1,108 million bd. ft. In Oregon, the average annual volume of logs exported has been 4.2 percent of the stand volume.

PRODUCTION

Production statistics for Port-Orford-cedar are sketchy. Port-Orford-cedar has always been a minor item in terms of total production and is usually grouped with western redcedar and incense-cedar or other softwoods.

Sawing of an appreciable amount of Port-Orford-cedar lumber began in the 1850's. In 1916, one estimate of the cut in Oregon sawmills was 40 million board feet.[2]

From 1940 to 1943, the average annual cut for lumber production was approximately 62 million bd. ft. At the same time, an estimated 29 million bd. ft. was cut into veneer and dimension stock by plants other than sawmills. Since then, domestic use of Port-Orford-cedar has markedly decreased. In 1960, 1,671,000 bd. ft. of domestic lumber was produced. At the present time, a very small part of the Port-Orford-cedar log production, probably less than 500,000 bd. ft., is used in domestic manufacturing.

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[2] Correspondence on file at Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

From the early 1900's, Port-Orford-cedar has been exported to other countries, principally Japan. The volume and average value of Port-Orford-cedar logs exported from 1961 to the present are:

Year	*Volume (MBF, Scribner rule)*	*Average value (Dollars)*
1961	61,216	124.39
1962	41,420	144.59
1963	64,404	116.72
1964	47,776	132.80
1965	36,324	175.17
1966	39,216	176.31
1967	36,848	261.39
1968	36,596	317.70
1969	38,312	359.72
1970	44,154	329.88

At the present time, all of the exported logs go to Japan.

Port-Orford-cedar production is declining and will continue to decline as the root disease, *Phytophthora lateralis,* spreads.

CHARACTERISTICS AND PROPERTIES

The sapwood of Port-Orford-cedar is nearly white to a pale yellow white, often not clearly distinguishable from the heartwood, and 1 to 3 inches wide. The heartwood is yellowish white to pale yellowish brown. The wood has a fine, unusually uniform texture and is generally straight grained. The springwood zone usually occupies most of the annual ring; the transition from springwood to summerwood is gradual. The summerwood is only slightly denser than the springwood.

The wood has a characteristic pungent, gingerlike odor and a bitter and somewhat spicy taste. This odor, which is due to a volatile oil, is very pronounced in mills which saw Port-Orford-cedar logs. Inhaling it continuously can cause kidney complications. Masks are generally worn for protection from the volatile oil and the fine dust resulting from sawing this wood.

The wood is moderately light in weight, stiff, moderately strong and hard, and moderately resistant to shock. The wood shrinks moderately and has little tendency to warp. It is easily worked with tools. The wood has good electrical resistance and a high resistance to the action of acids.

Port-Orford-cedar heartwood is classed with woods having the greatest resistance to decay. The wood takes a good polish, and paints last longer on it than on most other woods. Unprotected wood weathers to light gray with a silvery sheen and does not develop weather checks.

The characteristics and properties of wood from second-growth trees are not significantly different from those of old-growth wood.

PRINCIPAL USES

In the past, Port-Orford-cedar was the principal wood used for storage-battery separators. It was also used for venetian blind slats; sash, door, and interior-finish millwork items; lining for moth-proof boxes and closets; woodenware and novelties; boat construction, especially decking; matches; general construction; tanks; planking for bridges and docks; ties; and mine timbers. Now, the principal use for the small amount of Port-Orford-cedar that is not exported is for arrow shafts.

The Japanese import Port-Orford-cedar as a substitute for their native white cedar, which for centuries has been the favorite wood of Japanese builders and craftsmen. It is highly valued in their woodenware, novelty, and toy industries. Another major use is for construction and repair of shrines and temples.

REFERENCES

Darr, David R.
1971. Production, prices, employment, and trade in Northwest forest industries, second quarter 1971. USDA Forest Serv. Pac. Northwest Forest and Range Exp. Sta. 62 p., illus.

Forest Products Laboratory.
1955. Wood handbook, U.S. Dep. Agr. Agr. Handb. 72, 528 p., illus. Gill, Thomas G., and Phelps, Robert B.
1969. Wood used in manufacturing industries, 1965 U.S. Dep. Agr., Statist. Bull. 440, 101 p., illus.

Hazard, John W., and Metcalf, Melvin E.
1964. Forest statistics for southwest Oregon. Pac. Northwest Forest and Range Exp. Sta. USDA Forest Serv. Resour. Bull. PNW–8, 32 p.

Hazard, John W., and Metcalf, Melvin E.
1965. Forest statistics of west-central Oregon. Pac. Northwest Forest and Range Exp. Sta. USDA Forest Serv. Resour. Bull. PNW–10, 35 p.

Hunt, John, and Dimock, Edward J., II.
1957. Port-Orford-cedar—a poor risk for reforestation. USDA Forest Serv. Pac. Northwest Forest and Range Exp. Sta. Res. Note 139, 3 p.

Hunt, John.
1959. *Phytophthora lateralis* on Port-Orford-cedar. USDA Forest Serv. Pac. Northwest Forest and Range Exp. Sta. Res. Note 172, 6 p.

James, George A.
1958. Port-Orford-cedar plantations in the Pacific Northwest. USDA Forest Serv. Pac. Northwest Forest and Range Exp. Sta. Res. Note 164, 2 p.

Panshin, A. J., Zeeuw, Carl de, and Brown, H. P.
1964. Textbook of wood technology. Vol. 1, 643 p., illus. New York: McGraw-Hill Book Co.

Peakes, L. V., Jr., Lloyd, R. A., Barnes, V. S., and others.
1945. Substitute woods for Port-Orford white-cedar for storage battery separators. USDA Forest Serv. Forest Prod. Lab. R1476, 16 p.

Port Orford Cedar Products Company.
1929. Port-Orford-cedar—its properties and uses. 31 p. Portland, Oreg.: The Timberman.

Roth, Lewis F., Trione, Edward J., and Ruhmann, William H.
1957. Phytophthora induced rot of native Port-Orford-cedar. J. Forest. 55: 294-298, illus.

Stillinger, J. R.
1953. Strength and related properties of second growth Port-Orford white-cedar. J. Forest. 51: 555–559.

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